



Surveillance for Suicide and Suicide Attempts

John Blosnich, PhD, MPH
Health Science Specialist
VISN 2 Center of Excellence for Suicide Prevention

Fellow, Department of Psychiatry
University of Rochester

Robert Bossarte, PhD
Chief, Epidemiology and Population Interventions
VISN 2 Center of Excellence for Suicide Prevention

June 19, 2012



VA
HEALTH
CARE | Defining
EXCELLENCE
in the 21st Century

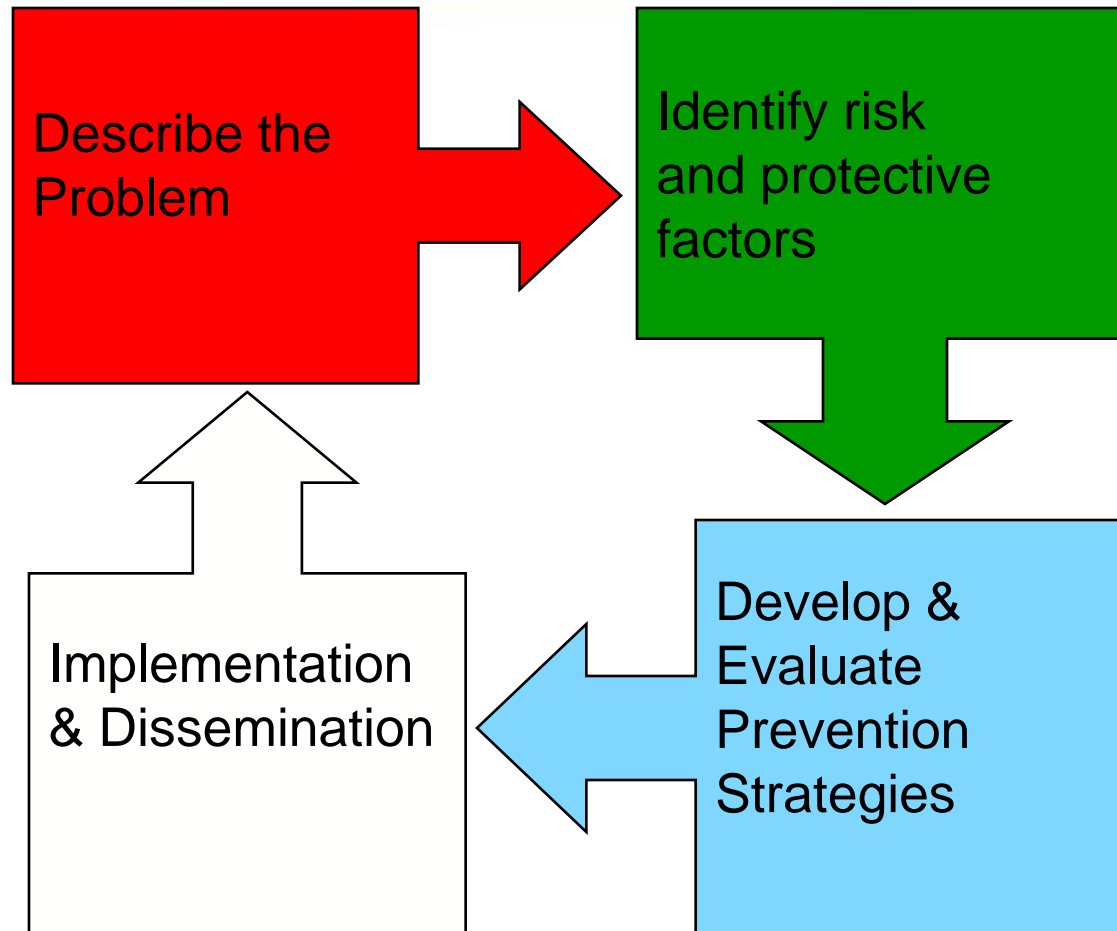
Outline

- Goals for surveillance for suicide events
- Some facts about Veteran suicide
- Limitations of existing systems
- Classification of suicide events
- Sources of data on self-report ideation and suicide attempts
- VA's Suicide Prevention Applications Network (SPAN)
- Mortality data
- Development of an integrated suicide data repository
- Discussion

Public Health Surveillance

- Data and surveillance form the foundation for the public health model of prevention. They are essential for identifying risk and protective factors for injury and disease, as well as evaluating interventions. Public health surveillance has been defined by the Centers for Disease Control and Prevention (CDC) as “the ongoing, systematic collection, analysis, interpretation, and dissemination of data about a health-related event for use in public health action to reduce morbidity and to improve health.”
- The public health model of prevention includes four basic steps: 1) define and monitor the problem, 2) identify risk and protective factors, 3) develop and test prevention strategies, and 4) assure widespread adoption of effective prevention programs. To apply the public health model to suicide prevention, data systems must be available to define and monitor the problem. However, monitoring suicidal behavior and outcomes can be challenging.

The Public Health Model



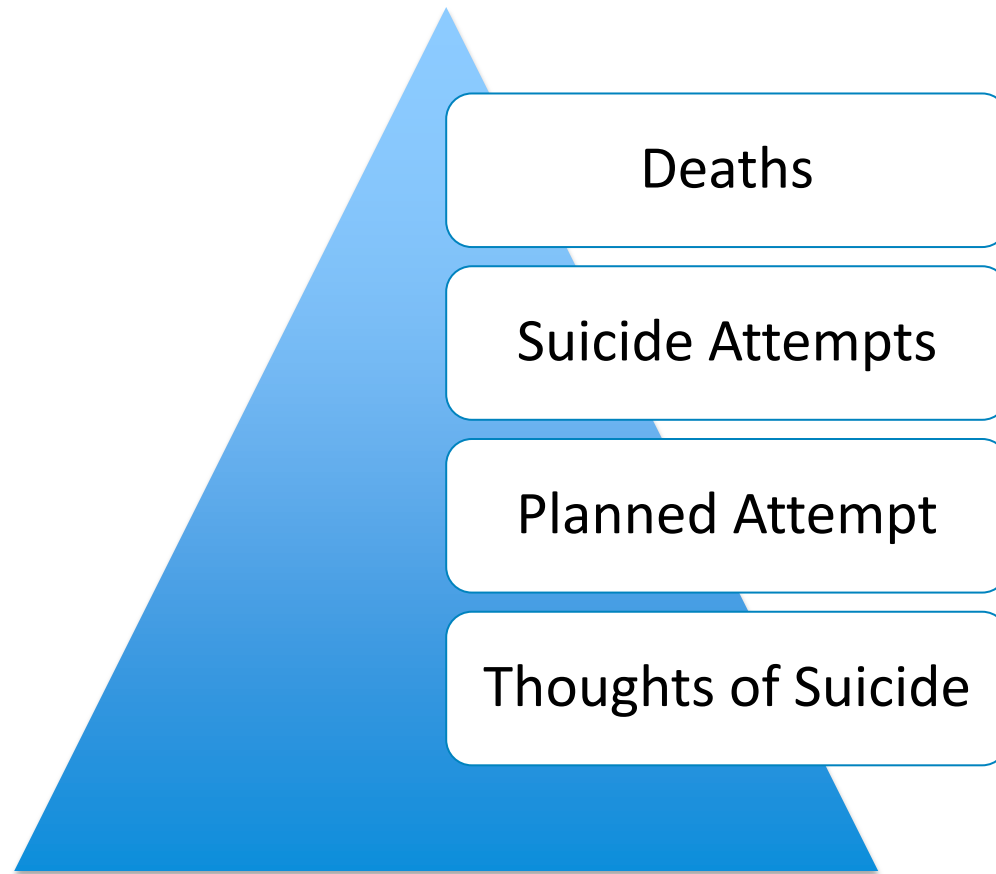
Challenges to Improved Surveillance of Suicide

- There is lack of consensus on what exactly should be monitored. Self-Directed Violence (SDV) encompasses a range of violent behaviors, including acts of fatal and nonfatal suicidal behavior, as well as non-suicidal self-harm (i.e., behaviors such as self-mutilation, where the intention is not to kill oneself).
- Some have questions if suicidal ideation (i.e., thinking about, considering, or planning for suicide) should be included.
- Most of the data systems currently used to estimate trends in suicidal behavior were not designed solely for addressing this subject. In these data systems, questions specific to suicide are often limited and the data rarely provide the depth of information desired to inform effective prevention and intervention efforts.
- There are differences in training (i.e. coroner vs. medical examiner systems) and policies that affect resources and timeliness of the data.

The Challenge of Suicide Attempts

- Suicide attempts are even more difficult to monitor. As pointed out in the 2006 report *Strategies to Improve Non-fatal Attempt Surveillance*, “Existing suicide attempt data comes from data systems that were not developed specifically for capturing information about suicide attempts. As a result, suicide attempt morbidity data that are available give an incomplete, and likely understated, account of the problem. Lacking efficient and effective means of collecting and examining data on an ongoing basis across the spectrum of suicidal behavior severely restricts the identification and development of prevention and intervention efforts.”
- Further, many existing studies of suicide attempts obtain information from clinical populations (i.e. known to clinical systems) or specific settings (i.e. emergency department).
- For example, the National Electronic Injury Surveillance System (NEISS) reports on the prevalence of intentional self-harm but relies on data obtained from a probability sample of U.S. emergency departments.

Injury Pyramid



Facts* about Veteran Suicide

- 30,000 - 32,000 US deaths from suicide per year among the population overall (*Centers for Disease Control and Prevention*)
- Approximately:
 - 20 percent are Veterans
National Violent Death Reporting System
 - 18 deaths from suicide per day are Veterans
National Violent Death Reporting System
 - 5 suicide related deaths per day among Veterans receiving care in Veterans Health Administration (VHA) *Veterans Affairs (VA) Serious Mental Illness Treatment, Research and Evaluation Center*
 - 950 suicide attempts per month among Veterans receiving care as reported by VHA suicide prevention coordinators (October 1, 2008 – December 31, 2010).

Facts about Veteran Suicide (continued)

- 11 percent (1051/10228) of those who attempted suicide in Fiscal Year (FY) 2009 (and did not die as a result of this attempt) made a repeat suicide attempt with an average of 9 months of follow-up
- 7 percent (724/10228) of suicide attempts resulted in death. Among those who survived their first suicide attempt and reattempted suicide within 9 months of their first FY 2009 event, approximately 6 percent (60/1051) died from suicide
- 33 percent of recent suicides have a history of previous attempts
VA National Suicide Prevention Coordinator reports
- 19 percent (191/996) of those that died by suicide were last seen by primary care (April 2010- June, 2011)
VA National Suicide Prevention Coordinator reports

Facts about Veteran Suicide (continued)

- There is evidence of a 21 percent excess of suicides through 2007 among Operation Enduring Freedom / Operation Iraqi Freedom (OEF/OIF) Veterans when their mortality was compared to that of the US general population, with adjustment for age, sex, race, and calendar year (*VA Office of Environmental Epidemiology*).
- There is preliminary evidence which suggests that there are decreased suicide rates in Veterans (men and women) aged 18-29 who use VA health care services relative to Veterans in the same age group who do not since 2006. This decrease in rates translates to approximately 250 lives per year (*National Violent Death Reporting System* and *VA Serious Mental Illness Treatment Resource and Evaluation Center*).
- More than 60 percent of suicides among utilizers of VHA services are among patients with a known diagnosis of a mental health condition (*Serious Mental Illness Treatment Research and Education Center*).
- Veterans are more likely than the general population to use firearms as a means for suicide (*National Violent Death Reporting System*).

National Strategy for Suicide Prevention (NSSP)

- The need for improved surveillance of suicide and suicide attempts was recognized in the 2001 National Strategy.
- This document included the following objectives:
- Developing and implementing standardized protocols for death scene investigations
 - Increase the number of follow-back studies of suicides
 - Increase the number of hospitals that code for external cause of injuries
 - Increase the number of nationally representative surveys with questions on suicidal behavior
 - Implement a national violent death reporting system that includes suicide
 - Increase the number of States that produce annual reports on suicide, and
 - Support pilot projects to link and analyze information on self-destructive behavior from various, distinct data systems.

The Action Alliance

- The National Strategy for Suicide Prevention (NSSP), published in 2001, called for establishing a public-private partnership to help guide the implementation of the goals and objectives in the NSSP.
- The Action Alliance, comprised of public and private co-chairs is designed to carry out this mission.
- The Data and Surveillance Task Force, which includes members from the Department of Veterans Affairs and the Centers for Disease Control and Prevention, has been tasked with developing recommendations for improving surveillance of suicide in the U.S.
- Many of the forthcoming recommendations have been informed by recently developed suicide surveillance systems implemented in the Department of Veterans Affairs and Department of Defense.

Action Alliance (continued)

Gordon Smith - Private Co-Chair

President / CEO National Association of Broadcasters

John McHugh – Public Co-Chair

Secretary of the United States Army

Executive Committee

Task
Groups
Formed
to date:

Strategic Intervention:

Clinical Care and
Intervention

Faith Communities

Clinical Workforce
Preparedness

Public Awareness

Youth in Contact with
Juvenile Justice

Strategic Infrastructure:

NSSP

Research

**Data and
Surveillance**

High Risk Populations Task groups:

Military / Veterans

American Indian

Lesbian, Gay,
Bisexual &
Transgender (LGBT)
Youth

Survivors of Suicide
Attempts

Goals of the Data and Surveillance Task Force

- The primary goal is to increase the timeliness and usefulness of surveillance data regarding suicide and suicidal behavior.
- This will be accomplished by pursuing the following two objectives:
- *1) Enhance and expand existing systems*
 - Identify the various extant data systems that can contribute to surveillance of suicide and suicidal behaviors.
 - Conduct surveillance on suicides that occur across a variety of health care and other institutional settings (e.g., inpatient facilities, emergency departments, prisons).
- *2) Improve the quality and the usefulness of the data collected*
 - Support ongoing efforts to improve the timeliness of vital statistics data.
 - Establish initiatives to reduce variation in manner of death on death certificates.
 - Facilitate efforts to standardize definitions and classification of suicidal behaviors.
 - Develop a procedure for measuring the impact of suicidal behavior on health care and other costs.
 - Support and facilitate efforts to link and/or share information across surveillance systems.

The Self-Directed Violence Classification System (SDVCS)

- To improve comparability of suicide event data, the VA has adopted the Self-Directed Violence Classification System (SDVCS) – developed in collaboration with the Centers for Disease Control and Prevention and other federal and academic partners.
- The SDVCS is a taxonomy of terms and corresponding definitions for thoughts and behaviors related to both suicidal and non-suicidal SDV. SDVCS terms are organized by:
 - Types
 - Subtypes
 - Definitions
 - Modifiers
 - Terms
- * ***Additional information about the SDVCS is available from the VISN 19 MIRECC at <http://www.mirecc.va.gov/visn19/education/nomenclature.asp>***

Type	Sub-Type	Definition	Modifiers	Terms
Thoughts	Non-Suicidal Self-Directed Violence Ideation	Self-reported thoughts regarding a person's desire to engage in self-inflicted potentially injurious behavior. There is no evidence of suicidal intent. For example, persons engage in Non-Suicidal Self-Directed Violence Ideation in order to attain some other end (e.g., to seek help, regulate negative mood, punish others, to receive attention).	N/A	•Non-Suicidal Self-Directed Violence Ideation
	Suicidal Ideation	Self-reported thoughts of engaging in suicide-related behavior. For example, intrusive thoughts of suicide without the wish to die would be classified as Suicidal Ideation, Without Intent.	•Suicidal Intent -Without -Undetermined -With	•Suicidal Ideation, Without Suicidal Intent •Suicidal Ideation, With Undetermined Suicidal Intent •Suicidal Ideation, With Suicidal Intent
Behaviors	Preparatory	Acts or preparation towards engaging in Self-Directed Violence, but before potential for injury has begun. This can include anything beyond a verbalization or thought, such as assembling a method (e.g., buying a gun, collecting pills) or preparing for one's death by suicide (e.g., writing a suicide note, giving things away). For example, hoarding medication for the purpose of overdosing would be classified as Suicidal Self-Directed Violence, Preparatory.	• Suicidal Intent -Without -Undetermined -With	•Non-Suicidal Self-Directed Violence, Preparatory •Undetermined Self-Directed Violence, Preparatory •Suicidal Self-Directed Violence, Preparatory
	Non-Suicidal Self-Directed Violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself. There is no evidence, whether implicit or explicit, of suicidal intent. For example, persons engage in Non-Suicidal Self-Directed Violence in order to attain some other end (e.g., to seek help, regulate negative mood, punish others, to receive attention).	• Injury -Without -With -Fatal • Interrupted by Self or Other	•Non-Suicidal Self-Directed Violence, Without Injury •Non-Suicidal Self-Directed Violence, Without Injury, Interrupted by Self or Other •Non-Suicidal Self-Directed Violence, With Injury •Non-Suicidal Self-Directed Violence, With Injury, Interrupted by Self or Other •Non-Suicidal Self-Directed Violence, Fatal
	Undetermined Self-Directed Violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself. Suicidal intent is unclear based upon the available evidence. For example, the person is unable to admit positively to the intent to die (e.g., unconsciousness, incapacitation, intoxication, acute psychosis, disorientation, or death); OR the person is reluctant to admit positively to the intent to die for other or unknown reasons.	• Injury -Without -With -Fatal • Interrupted by Self or Other	•Undetermined Self-Directed Violence, Without Injury •Undetermined Self-Directed Violence, Without Injury, Interrupted by Self or Other •Undetermined Self-Directed Violence, With Injury •Undetermined Self-Directed Violence, With Injury, Interrupted by Self or Other •Undetermined Self-Directed Violence, Fatal
	Suicidal Self-Directed Violence	Behavior that is self-directed and deliberately results in injury or the potential for injury to oneself. There is evidence, whether implicit or explicit, of suicidal intent. For example, a person with a wish to die cutting her wrist with a knife would be classified as Suicide Attempt, With Injury.	• Injury -Without -With -Fatal • Interrupted by Self or Other	•Suicide Attempt, Without Injury •Suicide Attempt, Without Injury, Interrupted by Self or Other •Suicide Attempt, With Injury •Suicide Attempt, With Injury, Interrupted by Self or Other •Suicide

Sources of Data on Suicide among Veterans

- **Data on the prevalence and characteristics of suicide ideation, suicide attempts, and suicide among Veterans are available from multiple sources.**
 1. Population-based surveys of health and health behavior
 2. Clinical records and diagnoses
 3. The Suicide Prevention Applications Network (SPAN)
 4. State mortality files
 5. The National Death Index (NDI)

Surveys Including Information on Veteran Status and Suicide

- Currently, there are two national surveys that include information on history of military service and suicide.
- The National Survey of Drug Use and Health (NSDUH) obtains data from a nationally-representative sample of U.S. children and adults. Beginning in 2008, all NSDUH participants are asked about suicide ideation, plans, and attempts in the last 12 months. NSDUH utilizes a question-screen methodology that only requests information on plans and attempts from those who report ideation or plans.
- Beginning in 2010, the Behavioral Risk Factor Surveillance Survey (BRFSS) included an optional Veterans Health Module.
- The Veterans Health Module, developed and sponsored by the Department of Veterans Affairs, also includes questions on suicide ideation, plans, and attempts.
- The Veterans Health Module was implemented in two states in 2010 and nine states in 2011.

TABLE 1—Demographic and Risk Characteristics of Suicide Ideation and Attempts Among Active Military and Veteran Participants: Behavioral Risk Factor Surveillance System, 2010

	Full Sample (n = 2602), % (95% CI)	Suicide-IDE (n = 66), % (95% CI)	Suicide-NEG (n = 2536), % (95% CI)	Rao-Scott χ^2	P
Age 18–39 y	15.9 (10.2–21.5)	24.9 (0.0, 58.8)	15.5 (9.7, 21.3)	0.64	.42
Age 40–59 y	32.7 (27.9, 37.6)	53.4 (27.6, 79.3)	31.9 (27.0, 36.9)	3.09	.08
Age 60–79 y	41.6 (36.9, 46.3)	19.5 (3.3, 35.8)	42.4 (37.6, 47.3)	5.27	.02
Age ≥ 80 y	9.8 (7.6, 12.1)	2.1 (0.0, 6.2)	10.2 (7.8, 12.5)	3.34	.07
Male	91.5 (88.8, 94.2)	73.3 (45.5, 100.0)	92.2 (89.7, 94.7)	5.19	.02
White, non-Hispanic	85.2 (80.4, 90.0)	70.8 (42.8, 98.9)	85.8 (80.9, 90.7)	1.89	.17
Black, non-Hispanic	7.1 (4.7, 9.5)	2.2 (0.0, 5.5)	7.3 (4.8, 9.7)	2.81	.09
Other, non-Hispanic	6.7 (2.2, 4.2)	25.7 (0.0, 54.3)	5.9 (1.4, 10.5)	5.10	.02
Hispanic	1.2 (0.4, 1.7)	1.2 (0.0, 3.2)	1.1 (0.4, 1.7)	0.04	.84
Married/cohabitating	75.1 (71.2, 78.9)	65.3 (42.2, 88.4)	75.5 (71.6, 79.4)	0.93	.33
Poor self-rated health	56.5 (53.3, 59.7)	72.9 (48.2, 97.7)	54.0 (48.8, 59.2)	1.99	.16
Active military	4.7 (1.9, 7.5)	2.4 (0.0, 6.7)	4.8 (1.9, 7.7)	0.61	.44
Veteran (service ≤ 12 mo)	12.5 (7.8, 17.2)	17.4 (0.0, 36.4)	12.3 (7.4, 17.1)	0.33	.56
Veteran (service > 12 mo)	82.8 (77.7, 88.0)	80.2 (60.7, 99.7)	82.9 (77.6, 88.2)	0.08	.78
Service in combat zone	43.5 (30.3, 48.8)	36.7 (11.3, 62.1)	43.8 (38.4, 49.2)	0.31	.58
Report of depression, anxiety, PTSD	16.5 (12.4, 20.5)	75.0 (52.4, 97.6)	14.1 (10.2, 18.1)	40.29	< .001
Traumatic brain injury	3.7 (1.3, 6.2)	8.9 (0.0, 20.1)	3.5 (1.0, 6.0)	1.84	.17
Mental health counseling/treatment	11.0 (7.4, 14.6)	52.1 (25.9, 78.1)	9.3 (5.8, 12.9)	26.42	< .001
Emotional/social support	81.7 (71.0, 86.4)	54.0 (28.1, 79.9)	82.8 (78.0, 87.6)	7.92	.005
Suicide ideation (past 12 mo)	3.8 (2.0, 5.6)
Suicide attempt (past 12 mo)	0.4 (0.0, 1.1)

Note. CI = confidence interval; IDE = ideation; NEG = negative; PTSD = posttraumatic stress disorder.

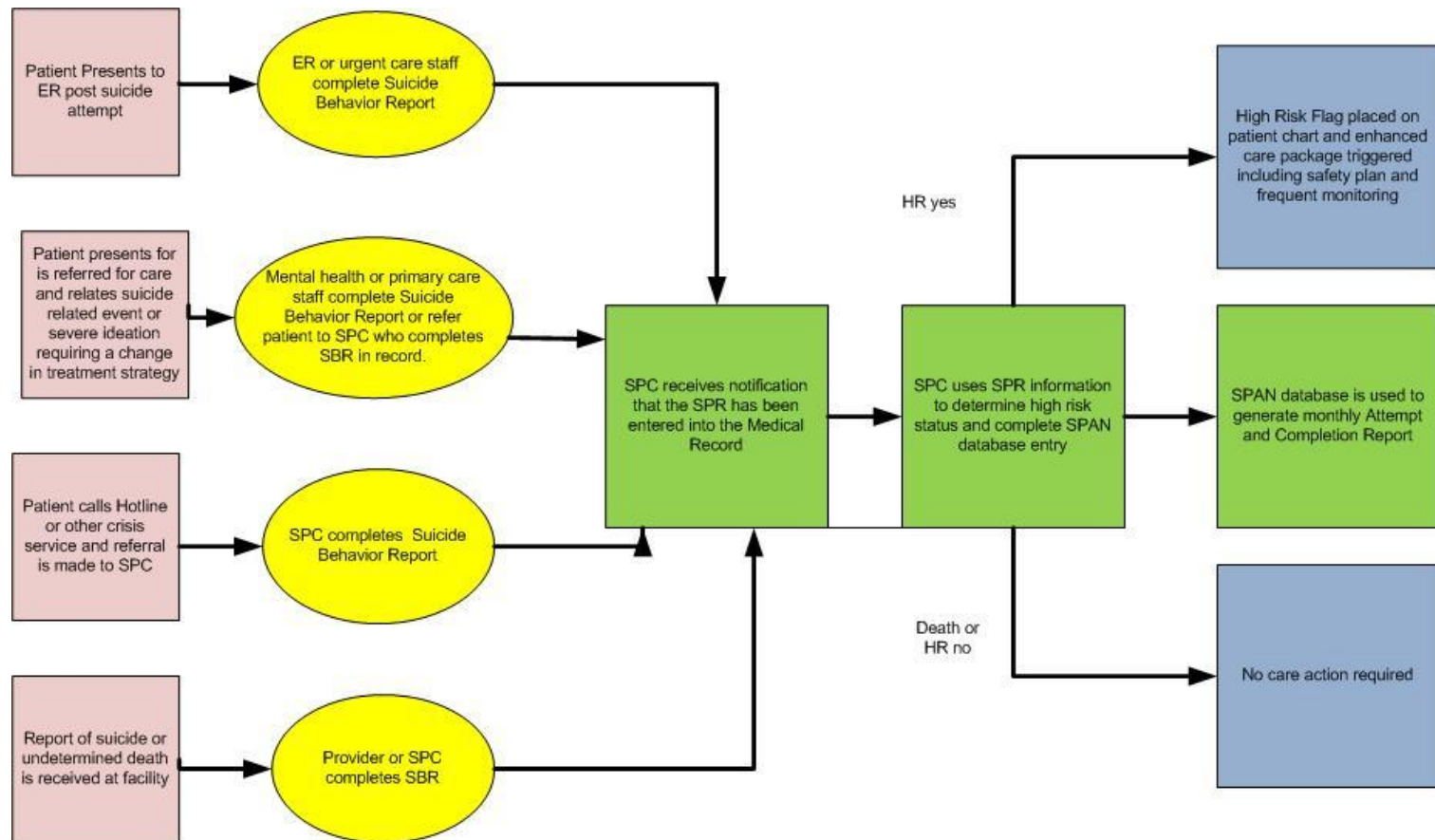
Suicide Event Reporting in the VA

- Suicide event data in the Department of Veterans Affairs is collected through the Suicide Prevention Applications Network (SPAN).
- SPAN
 - SPAN includes a standardized set of measures collected for all suicide events known to VA providers and Suicide Prevention Coordinators.
 - Data are entered electronically and can be used to identify individuals over time.
 - Data from SPAN are currently available for the time period October 1, 2008 – September 30, 2011.
 - Span data include information on nearly 40,000 suicide attempts and more than 32,000 Veterans

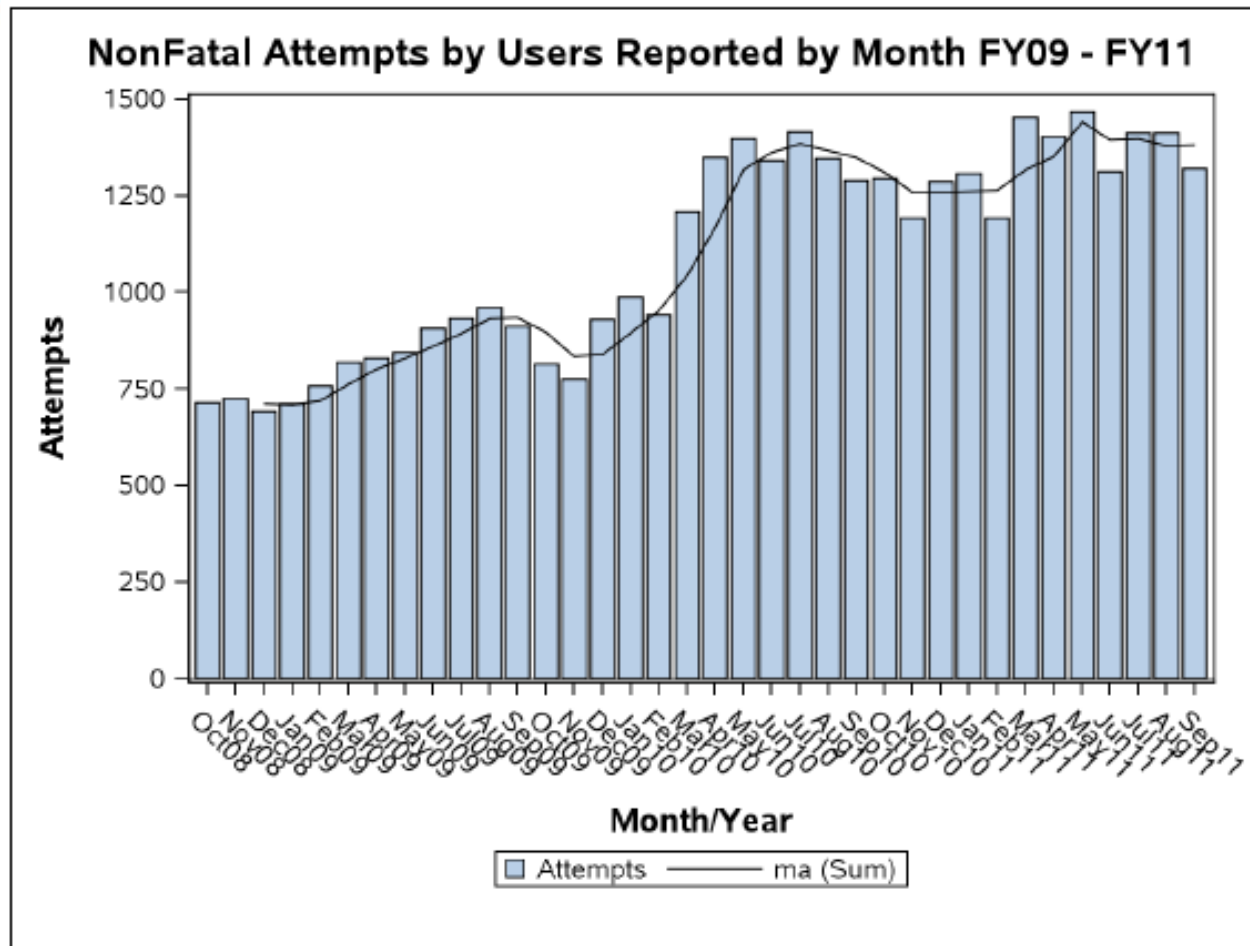
Recent Data

- Between Oct. 1, 2008 – Sept. 30, 2011 there were reports of one or more suicide attempts among 32,219 unique Veterans who received VA services.
- Among this group, a total of 39,661 suicide attempts were reported.
- Rates of suicide attempts were higher among younger and female Veterans.
- The lowest rate of non-fatal suicide events was among male Veterans age 70 years and older.
- SPAN provides the basic elements necessary for linkage with records of service use and identification of repeat suicide events.
- SPAN data are available for clinical use following entry of a Suicide Behavior Report and are updated quarterly for surveillance and research.

SPAN and Suicide Event Reporting



Event Reporting Over Time



Mortality Data

- Data on deaths from suicide are available from two sources:
 1. The National Death Index (NDI). The National Death Index (NDI) is a central computerized index of death record information on file in the State vital statistics offices. Working with State offices, the NDI was developed by the National Center for Health Statistics as a resource to aid epidemiologists and other health and medical investigators with their mortality ascertainment activities. Each year, the VA conducts a search of NDI data to obtain cause of death information for those who have received VHA services. However, the NDI is routinely delayed by 24-26 months (2010 data are expected to be available this summer).
 2. Cause of death information is also available by going directly to individual states. The advantages to obtaining data directly from states are 1) the ability to acquire data as each state finalizes the annual mortality file (rather than waiting for data from ALL states from the NDI) and 2) the availability of self-report information on history of U.S. military service.

Using State-Based Mortality Data for Veteran Suicide Surveillance

- All 50 states currently collect information on history of military service on their standard death certificates.
- In 2010, Secretary Shinseki sent a letter to the Governors of all U.S. states asking for their assistance with developing a centralized repository of suicide mortality data including information on history of U.S. military service.
- Each state has been asked to develop a data use agreement that would allow for the sharing of suicide mortality data before this information is available through the National Center for Health Statistics.
- The proposed database would allow for the calculations of VHA and non-VHA Veteran suicide rates, more precise estimates of the burden of suicide among all Veterans, and the development of indicators to assess the impact of VA-funded suicide prevention initiatives.
- To date, all 50 states have agreed to participate in this effort.
- Currently, the VA has received data from 30 states (including individual identifiers and history of military service) and have completed data use agreements with the remaining state governments.

Misclassification on State Death Certificates

- Washington is one of 47 states that identify history of U.S. military service on death certificates.
- Due to questions about the reliability of Veteran status on state death certificates, this information is not included in the CDC's national mortality data.
- Representatives from the National Center of Health Statistics have agreed to reconsider use of Veteran status if history of military service can be shown to be reliable and valid.
- To estimate the reliability of information obtained from death certificates, data from Washington (1999-2008) were used to validate history of military service reported by families or significant others.

Method

- History of U.S. military service was validated using VA administrative (VBA, VADIR, BIRLS) and patient treatment files and DoD records (available from the Defense Manpower Data Center).
- Misclassification was defined as 1) an indication of military service on the death certificate that could not be validated using VA or DoD data (non-Veterans) and 2) no indication of military service on the death certificate and history of VA service/eligibility or military service (Veterans).
- Due to limitations in DoD electronic record archives, analyses were limited to those who would have been 16 years of age or younger in 1961.

Results

- Overall, Veteran identifiers on Washington death certificates are reliable indicators of military service ($\kappa = .89$).
- Misclassification (over-reporting) was slightly more likely among older (40-64 years) white males. Under-reporting among younger persons (18-39 years) and females.
- There was less than a 3% difference in the rate of suicide calculated using death certificate data and information validated using VA and DoD administrative files.
- Little demonstrated variability over time.

Rates and Rate Ratios

	Identified on Death Certificate			Validated Military Service			
	N	Population	Rate Per 100,000	N	Population	Rate Per 100,000	Ratio
Total	1,165	4,158,197	28.017	1,197	4,158,197	28.787	0.9733
Age 18-39 years	357	1,958,441	18.229	403	1,958,441	20.578	0.8859
Age 40-64 years	808	2,058,379	39.254	794	2,058,379	38.574	1.0176
Female	47	1,994,427	2.357	65	1,994,427	3.259	0.7231
Male	1,118	2,022,393	55.281	1,132	2,022,393	55.973	0.9876
White	1,073	3,334,962	32.174	1,102	3,334,962	33.044	0.9737
Black	40	139,044	28.768	40	139,044	28.768	1.0000
Other	52	626,905	8.295	55	626,905	8.773	0.9455
Not Married	702	1,912,215	36.711	741	1,912,215	38.751	0.9474
Married	463	2,245,982	20.615	456	2,245,982	20.303	1.0154
Urban	1,017	3,887,599	26.160	1,043	3,887,599	26.829	0.9751
Suburban	131	507,095	25.833	136	507,095	26.819	0.9632
Rural	17	35,965	47.268	18	35,965	50.049	0.9444

NOTE: Population totals for marital status and overall total were calculated from the American Community Survey 5 year estimate. Populations totals for race were calculated from the 2004 and 2009 American Community Survey estimates. All other population estimates were calculated from the 2000 and 2010 Decennial Census.

Rates and Ratios by Means

	Identified on Death Certificate (N=1,165)		Validated Military Service (N=1,197)		Ratio
	N	Percent	N	Percent	
Firearm	636	54.59%	637	53.22%	1.02585
Poison/Overdose	266	22.83%	266	22.22%	1.02747
Strangulation	175	15.02%	195	16.29%	0.92209
Cut/Sharp Object	25	2.15%	28	2.34%	0.91738
Other	63	5.41%	71	5.93%	0.91170

The Development of a Suicide Data Repository

- The VA is developing a Suicide Data Repository that will consolidate and link multiple data systems into a comprehensive, searchable database that will provide the foundation for suicide surveillance and research activities.
- Data from available suicide prevention resources will be available to VA investigators and programs through the Repository.
- The Repository will also provide an single internal source to consolidate data for a DoD/VA Joint Suicide Repository that is also in development.
- The VA's Suicide Data Repository will include information:
 - SPAN (updated monthly)
 - Veterans Crisis Line (updated monthly)
 - State Mortality Database (updated as each "closed" file is received)
 - Joint purchase of the NDI data for all users of VHA services and those who have separated from active duty.
- The VA's Suicide Data Repository will begin receiving data in July of this year.

Questions?

- Feel free to contact Dr. Bossarte for additional information
- Robert.Bossarte@va.gov
- (585)393-7948